

JAPANESE WOLF SPIDERS OF THE *PIRATA*, WITH
DESCRIPTIONS OF FIVE NEW SPECIES
(ARANEAE : LYCOSIDAE)

By

Hozumi TANAKA

Entomological Laboratory, College of Agriculture,
University of Osaka Prefecture, Sakai, Japan

Up to the present, nine species of the genus *Pirata* SUNDEVALL have been recorded in Japan (excepting one from Chishima Islands). Four species were first described by BÖSENBERG & STRAND (1906), and one was added by STRAND (1907). SAITO (1939) described two species, and added two known in Europe to the Japanese fauna. As the result of my study, I learned that two species are not able to be placed in the genus *Pirata*, one species is disputable in the identification and other two species are very doubtful whether they actually exist as the independent species. Therefore, the only remaining four species are reliable. Besides those species, I have recognized another five species as new to science. Conclusively, the nine species are confirmed as Japanese *Pirata* (except for two questionable species) at present. In this paper are given a revision of the Japanese spiders of *Pirata* and a key to the species. The type-specimens are preserved in the Entomological Laboratory, College of Agriculture, University of Osaka Prefecture.

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Genus *Pirata* SUNDEVALL

Pirata SUNDEVALL, 1833, Nova Acta Soc. Sci. Upsal.: 192. [Type-species: *Araneus piraticus* CLERCK, 1757, by original designation.]

♀♂. Carapace with a characteristic V-shaped mark. Anterior eye row equal to, or shorter than, second eye row. Chelicera with three teeth on promargin, two or three on retromargin. Labium as long as wide or longer than wide. Abdomen with a lanceolate median mark on the anterior half, and with two longitudinal rows of spots of white pubescence on the posterior half.

Ecology: These spiders are found in damp or marshy areas along the margins of pond, lake, river, and paddy-field. They can run easily on the surface of water. The egg-sacs of these spiders are globe in shape and pinkish-white in color.

***Pirata piraticus* (CLERCK)**

[Japanese name: Kaizoku-komorigumo]

Araneus piraticus CLERCK, 1757, Aran. Svc. : 102.

Aranea piratica: OLIVIER, 1789, Encycl. Method. 4: 218.

Lycosa piratica: WALCKENAER, 1805, Tabl. Aran. : 14; HAHN, 1831, Arachniden 1: 107; WALCKENAER, 1837, Hist. Nat. Ins. Apt. 1: 339; C.L. KOCH, 1848, Arachniden 15: 1; BLACKWALL, 1861, Spid. Gr. Brit. Irel. I: 34; WESTRING, 1862, Aran. Svec. : 522; THORELL, 1872, Rem. Europ. Spid. : 341; LESSERT, 1910, Catal. Invert. Suisse; Araign. : 504; SIMON, 1937, Arachn. de France 6: 1118, 1140.

Pirata piraticus: SUNDEVALL, 1833, Nova Acta Soc. Sci. Upsal. : 192; SIMON, 1876, Arachn. de France 3: 300; MENGE, 1879, Schrift. Nat. Ges. Danzig (N.F.) 4: 513; CAMBRIDGE, 1881, Proc. Dorset F. Cl. 2: 353; BECKER, 1882, Ann. Mus. Hist. Nat. Belg. 10: 122; DAHL, 1883, Schrift Nat. Ver. Schlesw. Holst. 5: 64; HANSEN, 1885, in Schiödte, Zool. Danica : 153; CHYZER & KULCZYNSKI, 1891, Aran. Hunger. 1: 76; BÖSENBERG, 1903, Zoologica 14: 406; DAHL, 1908, Nov. Act. Leopoldina 88: 287; DAHL, 1912, Beitr. z. Naturdenkmalpfl. 3: 584; F. & M. DAHL, 1927, in DAHL, Tierw. Deutschl. 5: 64; REIMOSER, 1928, Natur (Wien) 4: 107; KRATOCHVOL, 1930, Sbornik Klub. Prirod. 13: 2; SAITO, 1934, Journ. Agr. Hokkaido Univ. 33: 351; GERTSCH & WALLACE, 1937, Amer. Mus. Novit. 919: 5; PALMGREN, 1939, Act. Zool. Fenn. 25: 70; KASTON, 1938, Canad. Ent. 70: 16; SAITO, 1941, Faun. Nipponica 9(2-2): 126; HOLM, 1947, Svensk Spindel-fauna 3: 10; KASTON, 1948, State Connect. Publ. Docum. 47, Bull. 70: 309; LOCKET & MILLIDGE, 1951, Brit. Spiders I: 287; BRAENDEGAARD, 1958, Zool. Iceland: 22; SAITO, 1959, Spider Book Col. : 59; WIEBES, 1959, Zool. Verhand. 42: 61; YAGINUMA, 1960, Spiders Japan Col. : 87; YAGINUMA, 1970, Bull. Nat. Sci. Mus. 13: 667.

Potamia piratica: THORELL, 1856, Rec. Crit. Aran. : 63.

Lycosa argenteomarginata LUCAS, 1846, Explor. Sci. Algér. Zool. 1 (Arach.) : 120.

Potamia argenteomarginata: SIMON, 1864, Hist. Nat. Araign. (1. Ed.) : 352.

Pirata prodigiosa KEYSERLING, 1876, Verh. Zool. Bot. Ges. Wien 26: 699.

Lycosa febriculosa BECKER, 1881, Ann. Soc. Ent. Belg. 25 C.R. : 45.

Pirata febriculosa: CHAMBERLIN, 1908, Proc. Ac. Nat. Sci. Philad. 60: 313; COM-STOCK, 1912, Spider Book : 645.

Lycosa wacondana SCHEFFER, 1904, Ent. News 15: 260.

Pirata wacondana: CROSBY & BISHOP, 1928, Mem. Cornell Univ. Agr. Exper. Stat. 101: 1069.

Pirata sylvestris EMERTON, 1909, Trans. Connect. Ac. Sci. 14: 209.

FEMALE

Measurements (mm): Total length 8.35. Carapace length 4.25, width 3.15. Abdomen length 4.10, width 2.90.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	3.10	3.85	2.60	1.30	10.85
II	2.90	3.50	2.40	1.20	10.00
III	2.75	3.20	2.50	1.25	9.70
IV	3.55	4.50	4.00	1.60	13.65
Palp	1.50	1.80	—	1.15	4.45

Carapace yellow-brown, with darker markings and a very narrow dark line along the margin; V-shaped mark distinct, blackish-brown; lateral light bands broad, with white pubescence. Anterior eye row equal to second eye row; diameter of anterior median eye about 1.5 times as large as anterior lateral eye; anterior median eyes separated from each other by about half the diameter of median eye, and from lateral eyes by less than half the diameter of median eye; anterior eye row procurved. Clypeus brown, slightly less in height than the diameter of anterior median eye. Maxilla yellow-brown, lighter at apex. Labium dark brown. Sternum light yellow-brown, with black patches opposite first three pairs of coxae. Abdomen with reddish-brown dorsal surface; a lanceolate median mark very distinct; sides reddish-brown, with white pubescence; ventral surface yellow-brown. Legs dark yellow-brown; metatarsus I with three ventral apical spines. Palp dark yellow-brown. Epigynum: In ventral view (fig. 1), and ear-like structure is seen along the lower margin in each side through the body wall; in dorsal view (fig. 2), with a pair of bottle-shaped and spatulate spermathecae.

MALE

Measurements (mm): Total length 6.35. Carapace length 3.25, width 2.40. Abdomen length 3.10, width 2.00.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	2.65	3.00	2.30	1.20	9.15
II	2.40	2.70	2.10	1.10	8.40
III	2.20	2.45	2.10	1.00	7.75
IV	2.90	3.55	3.25	1.35	11.05
Palp	1.40	1.50	—	1.00	3.90

Similar to the female, but different in the following features: Anterior eye row weakly procurved. Palp; tarsal organs (fig. 3) with an obtuse median apophysis bearing a pointed projection.

Variation: Total length ♀ 5.75-9.25, ♂ 4.35-6.40. Carapace length ♀ 2.75-4.25, ♂ 2.25-3.30; width ♀ 2.05-3.15, ♂ 1.65-2.45. Abdomen length ♀ 3.00-5.00, ♂ 2.10-3.10; width ♀ 2.15-3.65, ♂ 1.45-2.00. All the specimens are similar in coloration. The clypeal width ranges 1.0-1.2 times the diameter of the anterior median eye. In some samples, there are faint annulations on femora of all the legs. The number of the ventral apical spine on the metatarsus I is two in some samples.

Materials examined: Hokkaido-17♀♀, 3♂♂, Shiretokogoko, 13. vii. 1971 (H. TANAKA); 1♂, Aizankei, 10-11. vii. 1971 (H. TANAKA); Yukomanbetsu, 13. vii. 1973 (H. TANAKA); 1♀, 1♂, Onumakoen, 24. vii. 1971 (H. TANAKA).

Distribution: Japan (Hokkaido); widely distributed in the holarctic region.

Remarks: This species is very closely related to *P. subpiraticus* (BÖSENBERG et STRAND). It is difficult to separate them by the epigynum and genitalia, but easy to separate by the shape of the male palp. Clypeus is higher than in *subpiraticus* and the ratio in diameter of the anterior median eye to the anterior lateral one is larger than that of *subpiraticus*. There are some papers, in which this species was recorded, but it is quite doubtful whether all of them are correct or not.

Pirata subpiraticus (BÖSENBERG et STRAND)

[Japanese name: Kibara-komorigumo]

Tarentula (Pirata) subpiratica: BÖSENBERG et STRAND, 1906, Abh. Senck. naturf. Ges. 30: 317.

Pirata subpiratica: SAITO, 1941, Faun. Nipponica 9(2-2): 126; SAITO, 1959, Spider Book Col.: 59.

Pirata subpiraticus: YAGINUMA, 1906, Spider Japan Col.: 87; YAGINUMA, 1970, Bull. Nat. Sci. Mus. 13: 667.

FEMALE

Measurements (mm). Total length 7.30. Carapace length 3.35, width 2.60. Abdomen length 3.95, width 2.60.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	2.50	3.20	2.10	1.10	8.90
II	2.40	2.75	2.00	1.00	8.15

III	2.25	2.65	2.10	1.00	8.00
IV	3.20	3.90	3.45	1.30	11.85
Palp	1.25	1.30	—	0.95	3.50

Carapace yellow-brown, with darker markings and white pubescence and a very narrow dark line along the margin; V-shaped mark distinct, greyish-brown; lateral light bands broad. Anterior eye row equal to second eye row; diameter of anterior median eye about 2 times as large as that of lateral eye; anterior median eyes separated from each other by about half the diameter of median eye, and from lateral eyes by less than half the diameter of median eye; anterior eye row weakly procurved. Clypeus yellow-brown, less in height than half the diameter of anterior median eye. Chelicera dark reddish-yellow-brown. Maxilla yellow-brown. Labium greyish-yellow-brown. Sternum light yellow-brown, with dark patches along the margin. Abdomen with yellow-brown dorsal surface; a lanceolate median mark distinct; lateral surface yellow-brown, with blackish-grey markings and white pubescence; ventral surface yellow-brown. Legs greyish-yellow-brown with very faint annulations on femora I-IV; metatarsi I with two ventral apical spines. Palp greyish-yellow-brown. Epigynum: In ventral view (fig. 4), a pair of ear-like structures along the lower margin and indistinct stalked spermathecae at the upper part are seen through the body wall; in dorsal view (fig. 5), with two pairs of spatulate spermathecae.

MALE

Measurements (mm). Total length 5.45. Carapace length 3.05, width 2.20. Abdomen length 2.40, width 1.55.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	2.70	3.30	2.50	1.15	9.65
II	2.45	2.80	2.20	1.05	8.50
III	2.25	2.45	2.15	0.90	7.75
IV	3.05	3.65	3.30	1.30	11.30
Palp	1.25	1.05	—	0.95	3.25

Characteristic feature in the male: Palp; tarsal organs (fig. 6) with median apophysis, which has slender long margin and a small process at apex.

Variation: Total length ♀ 5.20-7.70, ♂ 5.20-6.35. Carapace length ♀ 2.60-3.70, ♂ 2.80-3.55; width ♀ 1.95-2.75, ♂ 2.35-2.85. Abdomen length ♀ 2.60-4.00, ♂ 2.40-3.80; width ♀ 1.70-2.90, ♂ 1.50-1.95. The coloration varies from light yellow-brown to greyish-yellow-brown. The lateral light bands on the carapace are separated from the margins by the faint dark markings in

some specimens. In some samples, the very narrow dark line along the margin on the carapace is not absent or faint. On the dorsal surface of the abdomen of some individuals, there are four or five obscure dark transverse bars. These bars end with a spot of white pubescence in each side. The number of the ventral apical spine on the metatarsus I is three in a few specimens.

Materials examined: Hokkaido—1♀, Kamikawa, 10. vii. 1971 (H. TANAKA); 5♀♀, 1♂, Onumakoen, 24. vii. 1971; 19♀♀, 4♂♂, 11. vii. 1973 (H. TANAKA); Honshu—2♀♀, 2♂♂, Niida, Akita Pref., vi-vii. 1970 (S. KOYAMA); 2♀♀, 1♂, Akayu, Yamagata Pref., 21. v. 1959 (S. NISHIKI); 1♀, Sendai, Miyagi Pref., vi. 1972 (S. KOBAYASHI); 6♀♀, 1♂, Hidaka-cho, Saitama Pref., 1972 (Y. FUJII); 1♀, Hidaka-cho, Saitama Pref., 21. iv. 1973 (H. TANAKA); 1♂, Daihisan, Kyoto Pref., 1. x. 1970 (H. TANAKA); 1♀, Senriyama, Osaka Pref., 21. vi. 1939 (T. YAGINUMA); 1♀, Sakai, Osaka Pref., 29. vi. 1970; 1♀, 20. viii. 1970; 1♀, 11. ix. 1970 (H. TANAKA); Shikoku—1♀, Otsu-cho, Tokushima Pref., 7. viii. 1959 (T. YAGINUMA); 5♀♀, Kanaiso, Tokushima Pref., 9. viii. 1957 (T. YAGINUMA); 3♀♀, Kanaiso, Tokushima Pref., 19. ix. 1957 (T. KOBAYASHI); 1♀, Akui-cho, Tokushima Pref., 6. viii. 1957 (T. YAGINUMA); 1♀, Kochi, Kochi Pref., 22. ix. 1949 (K. NAKAHIRA); Kyushu—1♀, Hikosan, Fukuoka Pref., 11-12. x. 1958 (C. OKUMA).

Distribution: Japan (Hokkaido, Honshu, Shikoku and Kyushu).

Remarks: This species is very closely allied to *P. piraticus* (CLERCK). The discriminating characters are noted in the remarks of the latter species.

Pirata yaginumai n. sp.

[Japanese name: Nami-komorigumo]

FEMALE

Measurements (mm). Total length 6.40. Carapace length 2.40, width 1.85. Abdomen length 4.00, width 2.65.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	1.90	2.45	1.50	0.90	6.75
II	1.75	2.20	1.45	0.80	6.20
III	1.70	2.05	1.60	0.80	6.15
IV	2.35	2.95	2.50	1.05	8.85
Palp	0.90	0.95	—	0.75	2.60

Carapace yellow-brown, with darker markings and no line along the margin; V-shaped mark distinct, grey-brown; lateral light bands separated

from margins by dark bands. Anterior eye row shorter than second eye row; anterior median eyes larger than laterals; anterior median eyes separated from each other by about half the diameter of median eye, and from laterals by less than half the diameter of median eye; anterior eye row weakly procurved. Clypeus light brown, as wide as the diameter of anterior median eye. Chelicera reddish-brown. Maxilla yellow-brown, lighter at apex. Labium dark brown. Sternum yellow-brown, with darker markings along the margin. Abdomen with yellow-brown dorsal surface, with dark grey markings; a lanceolate median mark distinct; sides greyish-yellow-brown, with blackish-grey markings; ventral surface greyish-yellow-brown. Legs reddish-brown, with distinct annulations. Palp reddish-brown, with colour uniform. Epigynum: In ventral view (fig. 7), a pair of round, horn-like structures and indistinct long spermathecae are seen through the body wall; in dorsal view (fig. 8), with a pair of slender long spermathecae at the upper part.

MALE

Measurements (mm). Total length 3.80. Carapace length 2.00, width 1.50. Abdomen length 1.80, width 1.15.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	1.75	2.20	1.55	0.95	6.45
II	1.65	1.95	1.45	0.85	5.90
III	1.60	1.80	1.55	0.75	5.70
IV	2.10	2.70	2.45	1.00	8.25
Palp	0.80	0.65	—	0.85	2.30

Similar to the holotype, but different in the following points: Palp; tarsal organs (fig. 9) with robust median apophysis bearing long projection upward; median apophysis in retrolateral view wide as illustrated in fig. 10.

Variation: Total length ♀ 4.65–7.00, ♂ 3.80–4.70. Carapace length ♀ 2.40–3.00, ♂ 2.00–2.50; width ♀ 1.60–2.05, ♂ 1.40–1.90. Abdomen length ♀ 2.25–4.00, ♂ 1.80–2.20; width ♀ 1.25–2.90, ♂ 1.15–1.35.

Holotype: ♀, Oginosen, Hyogo Prefecture 22. vi. 1972 (H. TANAKA).

Paratypes: Hokkaido—6♀♀, 3♂♂, Sounkyo, 8–9. vii. 1971 (H. TANAKA); 25♀♀, 2♂♂, Aizankei, 10–11. vii. 1971; 30♀♀, 23♂♂, 17. vii. 1973 (H. TANAKA); 3♀♀, Kamikawa, 10. vii. 1971 (H. TANAKA); 19♀♀, 4♂♂, Yuwao-betsu, 15. vii. 1971 (H. TANAKA); 8♀♀, 5♂♂, Yukomanbetsu, 13. vii. 1973 (H. TANAKA); 1♀, Antaroma, 19. vii. 1973 (H. TANAKA); 1♂, Onumakoen, 11. vii. 1973 (H. TANAKA); Honshu—24♀♀, 2♂♂, Todai, Nagano Pref., 22–23. vii. 1972 (H. TANAKA); 17♀♀, Minotoguchi, Yatsugadake, Nagano Pref., 31. vii. 1972;

53♀ ♀, 18♂ ♂, 29. vi. 1973 (H. TANAKA); 1♀, 2♂ ♂, Ozawagawa, Nagano Pref., 2. vi. 1973 (M. HASEGAWA); 9♀ ♀, 15♂ ♂, Kibune, Kyoto Pref., 10. v. 1970 (H. TANAKA); 3♀ ♀, Daihisan, Kyoto Pref., 12. ix. 1970 (H. TANAKA); 12♀ ♀, 6♂ ♂, Ominesan, Nara Pref., 7. vi. 1970 (H. TANAKA); 3♀ ♀, 2♂ ♂, Osugidani, Mie Pref., 12-14. vi. 1971 (H. TANAKA); 8♀ ♀, 1♂, Inunakiyama, Osaka Pref., 22. viii. 1970 (H. TANAKA); 10♀ ♀, 10♂ ♂, Iwawakisan, Osaka Pref., 13. v. 1970 (H. TANAKA); 5♀ ♀, 2♂ ♂, Koyasan, Wakayama Pref., 29. vii. 1970 (H. TANAKA); 24♀ ♀, 10♂ ♂, same data as holotype; 12♀ ♀, 4♂ ♂, Mikata, Hyogo Pref., 4. vii. 1970 (H. TANAKA); 17♀ ♀, 8♂ ♂, Awagamine, Hyogo Pref., 5. vii. 1970 (H. TANAKA); Kyushu—16♀ ♀, 30♂ ♂, Hikosan, Fukuoka Pref., 20-24. v. 1971 (H. TANAKA); 1♀, Kirishimayama, Kagoshima Pref., 27. v. 1971 (H. TANAKA); 13♀ ♀, 16♂ ♂, Kirishimajingu, Kagoshima Pref., 27. v. 1971 (H. TANAKA); 16♀ ♀, 4♂ ♂, Shimadomari, Kagoshima Pref., 29. v. 1971 (H. TANAKA); 12♀ ♀, 19♂ ♂, Kosugidani, Kagoshima Pref., 20. v. 1973 (H. TANAKA).

Distribution: Japan (Hokkaido, Honshu and Kyushu).

Remarks: This species is allied to *P. japonicus* n. sp. and *P. clercki* (BÖSENBERG et STRAND). From the former it can be distinguished by the presence of a very narrow dark line along margin on carapace, and from the latter by the proportion of the length of an anterior median eye to that of a lateral eye of the same row and by the existence of the lateral light bands separated from margin on carapace as indicated in the key.

***Pirata japonicus* n. sp.**

[Japanese name: Yamato-komorigumo]

FEMALE

Measurements (mm). Total length 5.10. Carapace length 2.50, width 1.75. Abdomen length 2.60, width 1.85.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	1.80	2.10	1.35	0.80	6.05
II	1.65	1.95	1.25	0.80	5.65
III	1.60	1.80	1.35	0.70	5.45
IV	2.15	2.70	2.35	0.95	8.15
Palp	0.80	0.85	—	0.65	2.30

Carapace yellow-brown, with darker markings and a very narrow dark line along the margin; V-shaped mark distinct, brown; lateral light bands

separated from margins by dark bands. Anterior eye row shorter than second eye row; diameter of anterior lateral eye about half as long as that of median eye; anterior median eyes separated from each other by more than half the diameter of median eye, and from lateral eyes by less than half the diameter of median eye; anterior eye row weakly procurved. Clypeus yellow-brown, the width less than half the length of anterior median eye. Chelicera reddish-brown. Maxilla yellow-brown, and lighter at apex. Labium greyish-yellow-brown. Sternum yellow-brown, with faint black patches opposite first three pairs of coxae. Abdomen with yellow-brown dorsal surface, with blackish-grey markings; a lanceolate median mark distinct; sides and ventral surface greyish-yellow-brown, with blackish-grey markings. Legs and palp reddish-brown, with colour uniform. Epigynum: In ventral view (fig. 11), a pair of dark forked structures and indistinct chevron-like spermathecae are seen through the body wall; in dorsal view (fig. 12), with a pair of erect long spermathecae.

MALE

Measurements (mm). Total length 4.55. Carapace length 2.25, width 1.65. Abdomen length 2.30, width 1.50.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	1.70	2.05	1.40	0.80	5.95
II	1.55	1.85	1.30	0.75	5.45
III	1.50	1.65	1.40	0.65	5.20
IV	2.00	2.45	2.20	0.90	7.55
Palp	0.80	0.75	—	0.65	2.20

Characters different from the holotype are as follows: Legs yellow-brown on femora and patellae I-IV, and reddish-brown from tibiae to tarsi I-IV; with no annulation; tarsus I viewed from above clearly incurved. Palp; tarsal organs (fig. 13) with robust median apophysis having long projection at apex; median apophysis in retrolateral view wide at the upper part, and with one projection tapered at end on ventral margin as shown in fig. 14.

Variation: Total length ♀ 3.95-6.35, ♂ 3.95-4.70. Carapace length ♀ 2.10-2.75, ♂ 2.05-2.40; width ♀ 1.45-1.95, ♂ 1.40-1.75. Abdomen length ♀ 1.85-3.60, ♂ 1.90-2.30; width ♀ 1.20-2.50, ♂ 1.15-1.50. In some paratypes, there are faint annulations of all the legs.

Holotype: ♀, Kamiakuigawa, Tokushima Prefecture, Honshu, 30. v. 1970 (H. TANAKA).

Paratypes: Hokkaido—1♀, 1♂, Momoiwa, Rebunto, 17. vii. 1971 (H. TANAKA); 1♀, Aizankei, 10-11. vii. 1971; 4♀ ♀, 17. vii. 1973 (H. TANAKA); 4♀ ♀,

3♂♂, Yukomanbetsu, 13. vii. 1973 (H. TANAKA); 16♀♀, 13♂♂, Antaroma, 19. vii. 1973 (H. TANAKA); 26♀♀, 19♂♂, Kamikawa, 10. vii. 1971 (H. TANAKA); 27♀♀, 13♂♂, Sapporo, 23. vii. 1971 (H. TANAKA); 35♀♀, 9♂♂, Onumakoen, 24. vii. 1971; 181♀♀, 110♂♂, 11. vii. 1973 (H. TANAKA); Honshu—2♀♀, 2♂♂, Niida, Akita Pref., vi-vii. 1970 (S. KOYAMA); 2♀♀, Kuriyamagawa, Morioka, Iwate Pref., 3. vii. 1964 (T. OKU); 1♀, Takizawa, Iwate Pref., 25. vi. 1973 (F. KOMAI); 3♀♀, 1♂, Sendai, Miyagi Pref., iv-xi. 1972 (S. KOBAYASHI); 11♀♀, 9♂♂, Ina, Nagano Pref., 7-8. vii. 1972 (H. TANAKA); 1♀, Abiko-cho, Chiba Pref., 12. viii. 1969 (S. MATSUMOTO); 4♀♀, Hidaka-cho, Saitama Pref., 1972 (Y. FUJII); 1♀, Hidaka-cho, Saitama Pref., 21. iv. 1973 (H. TANAKA); 1♀, Niihima, Tokyo, 3-5. v. 1955 (T. AOKI); 1♀, Daihisan, Kyoto Pref., 12. ix. 1970 (H. TANAKA); 1♀, Yodogawa, Osaka Pref., 26. vii. 1958 (M. YOSHIDA); 1♀, Sumiyoshi, Osaka Pref., 30. viii. 1965 (Y. TARUMI); 4♀♀, Mikata, Hyogo Pref., 24. iii. 1969 (H. TANAKA); 1♀, Nagatokyo, Nagato, Yamaguchi Pref., 12. vii. 1965 (K. MURAI); Shikoku—15♀♀, 8♂♂, same data as holotype; 2♀♀, Akui-cho, Tokushima Pref., 31. viii. 1956; 2♀♀, 6. viii. 1957 (T. KOBAYASHI); 1♀, Ishii, Tokushima Pref., 8. viii. 1957 (T. YAGINUMA); 1♀, Komatsujima, Tokushima Pref., 9. viii. 1957 (T. YAGINUMA); 14♀♀, 5♂♂, Tarumi, Ehime Pref., 25. v. 1970 (H. TANAKA); Kyushu—14♀♀, 4♂♂, Fukuoka, Fukuoka Pref., 18. v. 1971 (H. TANAKA); 12♀♀, 4♂♂, Kagoshima Pref., 25. v. 1971 (H. TANAKA).

Distribution: Japan (Hokkaido, Honshu, Shikoku and Kyushu).

Remarks: This species is similar to *P. yaginumai* n. sp. and *P. clercki* (BÖSENBERG et STRAND). The discriminating characters are noted in the remarks of the former species.

Pirata meridionalis n. sp.

[Japanese name: Minami-komorigumo]

FEMALE

Measurements (mm). Total length 5.55. Carapace length 2.75, width 2.05. Abdomen length 2.80, width 2.05.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	2.15	2.70	1.75	1.00	7.60
II	2.00	2.35	1.65	0.90	6.90
III	1.95	2.15	1.75	0.85	6.70
IV	2.55	3.15	2.80	1.15	9.65
Palp	0.95	1.10	—	0.85	2.90

Carapace yellow-brown, with darker markings and a very narrow dark line along the margin; V-shaped mark distinct, blackish-brown; lateral light bands separated from margins by dark bands. Anterior eye row shorter than second eye row; anterior median eyes slightly larger than laterals; anterior median eyes separated from each other by about half the diameter of median eye, and from laterals by less than half the diameter of median eye; anterior eye row weakly procurved. Clypeus yellow-brown, as wide as the diameter of anterior median eye. Chelicera reddish-brown. Maxilla yellow-brown. Labium dark yellow-brown. Sternum yellow-brown, with darker parts along the margin. Abdomen with blackish-grey dorsal surface, with three pairs of white spots; a lanceolate median mark distinct; sides greyish-yellow-brown, having white and black pubescence, with blackish-grey markings; ventral surface greyish-yellow-brown. Legs greyish-brown, with no annulation. Palp greyish-yellow-brown. Epigynum: In ventral view (fig. 15), a pair of black oval structures at the lower part and indistinct longitudinal spermathecae are seen through the body wall; in dorsal view (fig. 16), with a pair of long spermathecae.

MALE

Measurements (mm). Total length 4.35. Carapace length 2.55, width 1.80. Abdomen length 1.80, width 1.15.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	1.95	2.30	1.75	1.00	7.00
II	1.75	2.05	1.55	0.85	6.20
III	1.65	1.95	1.60	0.75	5.95
IV	2.25	2.90	2.50	1.00	8.65
Palp	0.80	0.90	—	0.75	2.45

Similar to the holotype, but different in the following features: Anterior eye row procurved. Palp; tarsal organs (fig. 17) with robust median apophysis bearing one small projection on dorsal surface.

Variation: Total length ♀ 4.85-5.65, ♂ 3.75-4.50. Carapace length ♀ 2.40-2.80, ♂ 2.20-2.60; width ♀ 1.75-2.10, ♂ 1.50-1.80. Abdomen length ♀ 2.45-2.85, ♂ 1.55-1.90; width ♀ 1.20-2.05, ♂ 0.95-1.20. In some paratypes, a very narrow dark line along the margin on the carapace is faint or absent.

Holotype: ♀, Miyanoura, Yakushima, Kagoshima Prefecture, Kyushu, 18. v. 1973 (H. TANAKA).

Paratypes: Kyushu—4♀ ♀, 8♂ ♂, same data as holotype.

Distribution: Japan (Kyushu).

Remarks: This species is similar to *P. boreus* n. sp., but is easily distinguished from the latter by the presence of the very narrow dark line along the margin on the carapace as indicated in the key, and by the shape of the epigynum and genitalia.

***Pirata boreus* n. sp.**

[Japanese name: Hate-komorigumo]

FEMALE

Measurements (mm). Total length 4.10. Carapace length 2.05, width 1.50. Abdomen length 2.05, width 1.45.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	1.60	1.95	1.30	0.75	5.60
II	1.50	1.80	1.20	0.70	5.20
III	1.45	1.70	1.35	0.65	5.15
IV	2.10	2.55	2.30	0.90	7.85
Palp	0.75	0.85	—	0.60	2.20

Carapace yellow-brown, with darker markings and no line along the margin, V-shaped mark distinct, dark brown; lateral light bands separated from margins by dark bands. Anterior eye row shorter than second eye row; anterior median eyes larger than laterals; anterior median eyes separated from each other by about half the diameter of median eye, and from laterals by less than half the diameter of median eye; anterior eye row procurved. Clypeus dark brown, as wide as the diameter of anterior median eye. Chelicera and maxilla dark yellowish-brown. Labium dark brown. Sternum yellowish-brown, with dark markings along the margin. Abdomen with blackish-grey dorsal surface, with four pairs of white spots (groups of pubescence); a lanceolate median mark distinct; sides greyish-yellow-brown, with blackish-grey markings; ventral surface greyish-yellow-brown. Legs and palp greyish-yellow-brown, with colour uniform. Epigynum: In ventral view (fig. 18), a pair of round structures in a pair of egg-like spermathecae at the lower part, and a pair of large round spermathecae at the upper part are seen through the body wall; in dorsal view (fig. 19), with a pair of big circular spermathecae.

MALE

Measurements (mm). Total length 3.55. Carapace length 1.90, width 1.45. Abdomen length 1.65, width 1.00.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	1.55	1.85	1.50	0.90	5.80
II	1.45	1.65	1.25	0.75	5.10
III	1.35	1.50	1.30	0.65	4.80
IV	1.90	2.30	2.15	0.85	7.20
Palp	0.65	0.70	—	0.65	2.00

Characters different from the holotype are as follows: Palp; tarsal organs (fig. 20) with robust median apophysis strongly curved at apex and wide at end.

Variation: As only a single male has been obtained, the measurements are shown in the females. Total length 3.85–5.35. Carapace length 2.05–2.65, width 1.45–1.85. Abdomen length 1.80–2.70, width 1.10–1.90. The coloration varies from reddish-brown to greyish-yellow-brown.

Holotype: ♀, Onumakoen, Hokkaido, 11. vii. 1973 (H. TANAKA).

Paratypes: Hokkaido—2♀♀, Onumakoen, 24. vii. 1971 (H. TANAKA); 5♀♀, 1♂, same data as holotype.

Distribution: Japan (Hokkaido).

Remarks: The present new species bears some resemblance to *P. boreus* n. sp., *P. procurvus* (BÖSENBERG et STRAND), and *P. latitans* (BLACKWALL) in the shape of epigynum, but is distinguished from them by the following points:

	<i>boreus</i>	<i>exiguus</i>	<i>procurvus</i>	<i>latitans</i>
Ratio of a median eye to a lateral eye of anterior row	more than 1	1	1	1
Lateral light bands on carapace separated from margins by dark bands	present	present	absent	absent
Curvature of anterior eye row	procurved	procurved	procurved	straight

This species is also similar to *P. meridionalis* n. sp.. The discriminating characters are noted in the remarks of the latter species.

Pirata clercki (BÖSENBERG et STRAND)

[Japanese name: Kuraku-komorigumo]

Tarentula (Pirata) Clercki BÖSENBERG et STRAND, 1906, Abh. Senck. naturf. Ges. 30: 316.

Pirata Clercki: SAITO, 1941, Faun. Nipponica 9(2-2): 121.

Pirata clercki: YAGINUMA, 1960, Spiders Japan Col.: 87; YAGINUMA, 1970, Bull. Nat. Sci. Mus. 13: 667.

FEMALE

Measurements (mm). Total length 5.95. Carapace length 3.20, width 2.30. Abdomen length 2.75, width 1.90.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	2.55	3.45	2.15	1.25	9.40
II	2.50	3.00	2.10	1.15	8.75
III	2.35	2.80	2.35	1.05	8.55
IV	3.25	4.20	3.75	1.40	12.60
Palp	1.20	1.35	—	1.00	3.55

Carapace yellow-brown, with darker markings and no line along the margin; V-shaped figure distinct, black-brown; lateral light bands broad. Anterior eye row shorter than second eye row; anterior eye of equal diameter; anterior median eyes separated from each other by less than the diameter of median eye, and from laterals by about half the diameter of median eye; anterior eye row weakly procurved. Clypeus brown, 1.5 times the diameter of anterior median eye. Chelicera reddish-brown. Maxilla and labium reddish-yellow-brown. Sternum yellow-brown, with darker parts along the margin. Abdomen with blackish-grey dorsal surface; a lanceolate median mark distinct; sides yellow-brown, with blackish-grey markings; ventral surface yellow-brown, with a few dark blotches. Legs reddish-yellow-brown, with faint annulations on femora I-IV. Palp reddish-yellow-brown. Epigynum: In ventral view (fig. 21), a distinct dark round structure is seen along the lower margin in each side through the body wall; in dorsal view (fig. 22), with three pairs of round spermathecae.

MALE

Measurements (mm). Total length 5.10. Carapace length 2.75, width 2.00. Abdomen length 2.35, width 1.50.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	2.30	3.05	2.05	1.40	8.80
II	2.10	2.65	1.90	1.15	7.80
III	2.10	2.40	2.00	0.95	7.45
IV	2.85	3.60	3.25	1.30	11.00
Palp	1.10	1.05	—	0.90	3.05

Similar to the female, but different in the following features: Palp; tarsal organs (fig. 23) with a robust median apophysis bearing slender long projection upward; median apophysis in retrolateral view sharp at apex as shown in fig. 24.

Variation: Total length ♀ 4.45–7.65, ♂ 4.30–5.40. Carapace length ♀ 2.30–3.20, ♂ 2.45–2.85; width ♀ 1.60–2.35, ♂ 1.85–2.10. Abdomen length ♀ 2.15–4.45, ♂ 1.85–2.55; width ♀ 1.25–2.85, ♂ 1.15–1.70. The coloration varies from reddish-brown to blackish-grey. The clypeal width ranges 1.0–1.5 times the diameter of the anterior median eyes. Some specimens have the distinct annulations on the femora, patellae and tibiae of all the legs.

Materials examined: Hokkaido—1♀, Kobuka, Rebunto, 17. vii. 1971 (H. TANAKA); 1♀, Katsumayama, Okushirito, 27. vii. 1964 (M. OHNO); Honshu—1♀, Oshizu-ana Cave, Iwate Pref., 31. vii. 1968 (S. UENO); 8♀♀, 2♂♂, Hidakacho, Saitama Pref., 21. iv. 1973 (H. TANAKA); 2♀♀, Oyamaguchi, Hira, Shiga Pref., 5. viii. 1955 (T. YAGINUMA); 1♀, Kitayama, Kyoto Pref., 15. v. 1969 (H. TANAKA); 5♀♀, 1♂, Daimonjiyama, Kyoto Pref., 9. viii. 1970 (H. TANAKA); 2♀♀, 2♂♂, Yoshino, Nara Pref., 22. viii. 1971 (H. TANAKA); 1♀, Osugidani, Mie Pref., 12–14. vi. 1971 (H. TANAKA); 10♀♀, Iwawakisan, Osaka Pref., 24. viii. 1970 (H. TANAKA); 1♀, Kimitoge, Osaka Pref., 19. ix. 1971 (H. TANAKA); 10♀♀, 1♂, Inunakiyama, Osaka Pref., 22. viii. 1970 (H. TANAKA); 2♀♀, 4♂♂, Enmeiji, Osaka Pref., 16. xi. 1970 (H. TANAKA); 16♀♀, 10♂♂, Koyasan, Wakayama Pref., 29. vii. 1970 (H. TANAKA); 1♀, Onuma, Wakayama Pref., 1. vi. 1951 (T. YAGINUMA); 1♀, Otoyama, Wakayama Pref., 22. vii. 1973 (Y. KUWANA); 21♀♀, 14♂♂, Oginosen, Hyogo Pref., 22. vi. 1972 (H. TANAKA); 4♀♀, 1♂, Awagamine, Hyogo Pref., 5. vii. 1970 (H. TANAKA); 1♀, Daisen, Tottori Pref., 17–18. vii. 1970 (F. KOMAI); Shikoku—14♀♀, 11♂♂, Muroto-misaki, Kochi Pref., 29. v. 1970 (H. TANAKA); 1♀, Ishizuchiyama, Ehime Pref., 27. vii. 1958 (K. MORIKAWA); Kyushu—3♀♀, Hikosan, Fukuoka Pref., 25. viii. 1954; 3♀♀, 4–9. viii. 1958 (C. OKUMA); 27♀♀, 14♂♂, 20–24. v. 1971 (H. TANAKA); 1♂, Nanatsugama, Shimizu-do Cave, Nagasaki Pref., vii. 1951 (M. KUBOTA); 2♀♀, Takachihokyo, Miyazaki Pref., 24. vii. 1960 (C. OKUMA); 1♀, Kirishimayama, Kagoshima Pref., 27. v. 1971 (H. TANAKA); 34♀♀, 1♂, Kirishimakogen, Kagoshima Pref., 27. v. 1971 (H. TANAKA); 38♀♀, 5♂♂, Eboshidake, Kagoshima Pref., 1. vi. 1971 (H. TANAKA); 11♀♀, 4♂♂, Shimadomari, Sada-cho, Kagoshima Pref., 29. v. 1971 (H. TANAKA); 13♀♀, 11♂♂, Sadamisaki, Kagoshima Pref., 29. v. 1971 (H. TANAKA); 8♀♀, 6♂♂, Anbo, Yakushima, Kagoshima Pref., 18. v. 1973 (H. TANAKA); 2♀♀, Kosugidani, Yakushima, Kagoshima Pref., 20. v. 1973 (H. TANAKA).

Distribution: Japan (Hokkaido, Honshu, Shikoku and Kyushu).

Remarks: This species is closely related to *P. yaginumai* n. sp. and *P.*

japonicus n. sp.. The distinguishing characters are noted in the remarks of the former species.

***Pirata exiguus* n. sp.**

[Japanese name: Kogata-komorigumo]

FEMALE

Measurements (mm). Total length 3.65. Carapace length 1.95, width 1.40. Abdomen length 1.70, width 1.20.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	1.40	1.70	1.05	0.65	4.80
II	1.30	1.55	1.00	0.60	4.45
III	1.25	1.50	1.15	0.60	4.50
IV	1.75	2.25	1.95	0.85	6.80
Palp	0.70	0.75	—	0.55	2.00

Carapace yellow-brown, with darker markings and a very narrow dark line along the margin; V-shaped mark distinct, greyish-brown; lateral light bands separated from margins by dark bands. Anterior eye row shorter than second eye row; anterior eye row of equal diameter; anterior median eyes separated from each other and from laterals by about half the diameter of median eye; anterior eye row procurved. Clypeus brown, as wide as the diameter of anterior median eye. Chelicera reddish-brown. Maxilla yellowish-brown. Labium greyish-brown. Sternum yellow-brown, with indistinct greyish markings along the margin. Abdomen with blackish-grey dorsal surface, with greyish-yellow-brown patches; a lanceolate median mark faint; sides greyish-yellow-brown, with blackish-grey markings; ventral surface greyish-yellow-brown. Legs greyish-yellow-brown, with no annulation. Palp yellowish-brown from femur to tarsus. Epigynum: In ventral view (fig. 25), a pair of round, oval structures at the lower parts and large round spermathecae at the upper part are seen through the body wall; in dorsal view (fig. 26), with a pair of small oval spermathecae and large ones.

MALE

Measurements (mm). Total length 3.30. Carapace length 1.85, width 1.30. Abdomen length 1.45, width 1.00.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	1.30	1.55	1.00	0.70	4.55
II	1.25	1.45	1.00	0.65	4.35

III	1.25	1.40	1.10	0.60	4.35
IV	1.65	2.10	1.80	0.85	6.40
Palp	0.75	0.65	—	0.60	2.00

Carapace greyish-yellow-brown, with darker markings and a very narrow dark line along the margin; V-shaped figure distinct, dark brown; lateral light bands separated from margins by dark bands. Eyes same as the holotype, except for extremely procurved anterior eye row. Clypeus blackish-grey, as wide as the diameter of anterior median eye. Chelicera blackish-grey. Maxilla greyish-yellow-brown on base, lighter at apex. Labium blackish-grey. Sternum greyish-yellow, with darker markings along the margin. Abdomen with blackish-grey dorsal surface; a lanceolate median mark distinct; sides greyish-yellow, with blackish-grey markings; ventral surface greyish-yellow. Legs black on femora I and II, and yellowish-white on patellae to tarsi I and II; greyish-yellow-brown on femora III and IV, and yellowish-brown on patellae to tarsi III and IV. Palp black on femur, and blackish-grey-yellow on patella and tibia; tarsal organs (fig. 27) with forked median apophysis.

Variation: Total length ♀ 3.25-4.90, ♂ 3.20-3.55. Carapace length ♀ 1.70-2.20, ♂ 1.75-2.00; width ♀ 1.30-1.50, ♂ 1.20-1.40. Abdomen length ♀ 1.55-2.70, ♂ 1.45-1.55; width ♀ 1.10-2.00, ♂ 1.00-1.10. In some samples of the females, the lanceolate median mark distinct. The color pattern is very similar in all specimens.

Holotype: ♀, Minotoguchi, Yatsugadake, Nagano Prefecture, 31. vii. 1972 (H. TANAKA).

Paratypes: Hokkaido—4♀♀, Kushiro, 10. viii. 1964 (M. TSUTSUMI); Honshu—13♀♀, same data as holotype; 8♀♀, 5♂♂, Minotoguchi, Yatsugadake, Nagano Pref., 29. vi. 1973 (H. TANAKA); 1♀, Shinosaka, Shizuoka Pref., 25. viii. 1972 (Y. NISHIKAWA).

Distribution: Japan (Hokkaido and Honshu).

Remarks: This species resembles *P. boreus* n. sp., *P. procurvus* (BÖSENBERG et STRAND), and *P. latitans* (BLACKWALL). The discriminating characters are noted in the remarks of the *boreus* n. sp..

Pirata procurvus (BÖSENBERG et STRAND)

[Japanese name: Chibi-komorigumo]

Tarentula (*Pirata*) *procurva* BÖSENBERG et STRAND, 1906, Abh. Senck. naturf. Ges. 30: 315.

Pirata procurva: SAITO, 1941, Faun. Nipponica 9(2-2) : 125.

Pirata procurvus: YAGINUMA, 1960, Spiders Japan Col. : 87; YAGINUMA, 1970, Bull. Nat. Sci. Mus. 13 : 667.

FEMALE

Measurements (mm). Total length 4.45. Carapace length 2.05, width 1.40. Abdomen length 2.40, width 1.55.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	1.55	1.95	1.15	0.80	5.45
II	1.40	1.75	1.10	0.70	4.95
III	1.45	1.55	1.30	0.65	4.95
IV	2.00	2.50	2.25	0.95	7.70
Palp	0.70	0.70	—	0.65	2.05

Carapace yellow-brown, with darker markings and a very narrow dark line along the margin; V-shaped figure distinct, dark brown; lateral light band broad. Anterior eye row shorter than second eye row; anterior median eyes equal in length to laterals; anterior median eyes separated from each other and laterals by about the diameter of median eye; anterior eye row procurved. Clypeus brown, as wide as the diameter of anterior median eye. Chelicera reddish-brown. Maxilla yellow-brown. Labium dark reddish-brown. Sternum greyish-yellow-brown, with faint darker markings along the margin. Abdomen with blackish-grey dorsal surface; a lanceolate median mark faint along the margin; sides yellow-brown, with blackish-grey markings; ventral surface greyish-yellow. Legs reddish-brown, with colour uniform. Palp dark reddish-brown. Epigynum: In ventral view (fig. 28), three pairs of indistinct round structures are seen; in dorsal view (fig. 29), with a pair of small round spermathecae at the upper part.

MALE

Measurements (mm). Total length 3.60. Carapace length 2.00, width 1.35. Abdomen length 1.60, width 1.05.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	1.35	1.75	1.15	0.80	5.05
II	1.40	1.60	1.10	0.70	4.80
III	1.25	1.45	1.20	0.60	4.50
IV	1.80	2.20	1.95	0.85	6.80
Palp	0.75	0.65	—	0.70	2.10

Carapace greyish-yellow-brown, with darker markings and a very narrow dark line along the margin; V-shaped figure indistinct; lateral light bands

broad. Eyes same as female, except for strongly procurved anterior eye row. Clypeus blackish-grey, 1.5 times the diameter of anterior median eye. Chelicera blackish-grey. Maxilla yellowish-brown. Labium greyish-yellow-brown. Sternum yellowish-white. Abdomen with blackish-grey dorsal surface; a lanceolate median mark distinct; sides greyish-yellow-brown, with blackish-grey markings; ventral surface greyish-yellow. Legs black on femur I, and yellowish-white on patella to tarsus I; greyish-yellow-brown on the other legs II-IV. Palp black on femur, and blackish-grey-yellow on patella and tibia; tarsal organs (fig. 30) with robust coiled median apophysis bearing tapering margin at end; median apophysis in retrolateral view with a rectangular branch as illustrated in fig. 31.

Variation: Total length ♀ 3.10-4.80, ♂ 3.00-3.95. Carapace length ♀ 1.60-2.20, ♂ 1.70-2.05; width ♀ 1.10-1.60, ♂ 1.00-1.45. Abdomen length ♀ 1.50-2.60, ♂ 1.30-1.90; width ♀ 1.00-1.80, ♂ 0.85-1.25. The coloration varies from reddish-brown to blackish-grey. In both the sexes, the clypeal width ranges 1.0-1.5 times the diameter of the anterior median eyes. The diameter of the anterior median eyes is smaller than that of the laterals in some samples. In some individuals of the male, the lanceolate median mark is faint or absent.

Materials examined: Honshu—19♀♀, 6♂♂, Ina, Nagano Pref., 8. vii. 1972; 5♀♀, 21. vii. 1972; 22♀♀, 20♂♂, 28. vi. 1973 (H. TANAKA); 1♀, Omijinja, Shiga Pref., 28. v. 1965 (Y. TARUMI); 11♀♀, 3♂♂, Yoshino, Nara Pref., 22. viii. 1971 (H. TANAKA); 1♀, Shirasagi, Sakai, Osaka Pref., 12. vi. 1964 (Y. TARUMI); 1♀, Kimitoge, Osaka Pref., 17. ix. 1971 (H. TANAKA); 10♀♀, 1♂, Iwawakisan, Osaka Pref., 24. viii. 1970 (H. TANAKA); 6♀♀, 6♂♂, Sakai, Osaka Pref., 1. vii. 1970 (H. TANAKA); 1♂, Amami, Osaka Pref., 27. v. 1969 (H. TANAKA); 3♀♀, 5♂♂, Awagamine, Hyogo Pref., 5. vii. 1970 (H. TANAKA); 1♀, 4♂♂, Oginosen, Hyogo Pref., 22. vi. 1972 (H. TANAKA); Shikoku—1♀, Okubodera, Kagawa Pref., 5. viii. 1968 (Y. TARUMI); 2♂♂, Tarmi, Ehime Pref., 25. v. 1970 (H. TANAKA); 3♀♀, Omogo, Ehime Pref., 20. vii. 1958 (K. MORIKAWA); Kyushu—4♀♀, Hikosan, Fukuoka Pref., 25. viii. 1954; 2♀♀, 2♂♂, 4-9. viii. 1958; 1♀, 11-12. x. 1958 (C. OKUMA); 3♀♀, Chikushi-yabakei, Fukuoka Pref., 21. vii. 1959 (S. MIYAMOTO); 1♀, 2♂♂, Nanakuma, Fukuoka Pref., 13. vi. 1958 (C. OKUMA); 1♀, Miyazakijingu, Miyazaki Pref., 14. vi. 1953; 1♀, Aoshima, Miyazaki Pref., 14. vi. 1953 (T. YAGINUMA); 1♀, Shuba, Ogochi, Miyazaki Pref., 6-7. viii. 1961 (C. OKUMA); 9♀♀, 6♂♂, Eboshidake, Kagoshima

Pref., 1. vi. 1971 (H. TANAKA); 2♀ ♀, 1♂ ♂, Sadamisaki, Kagoshima Pref., 29. v. 1971 (H. TANAKA); 13♀ ♀, 16♂ ♂, Shimadomari, Sada-cho, Kagoshima Pref., 29. v. 1971 (H. TANAKA); 26♀ ♀, 18♂ ♂, Anbo, Yakushima, Kagoshima Pref., 25. v. 1973 (H. TANAKA); 1♀ ♀, Yuwan, Amamioshima, Kagoshima Pref., 29. vii. 1964 (Y. TARUMI).

Distribution: Japan (Hokkaido, Honshu, Shikoku and Kyushu).

Remarks: This species is similar to *P. boreus* n. sp., *P. exiguus* n. sp., and *P. latitans* (BLACKWALL). The distinguishable characters are noted in the remarks of the *boreus* n. sp..

***Pirata piratoides* (BÖSENBERG et STRAND)**

[Japanese name: Imo-komorigumo]

Tarentula (Pirata) piratoides BÖSENBERG et STRAND, 1906, Abh. Senck. naturf. Ges. 30: 318.

Pirata piratoides: SAITO, 1941, Faun. Nipponica 9(2-2): 125; YAGINUMA, 1970, Bull. Nat. Sci. Mus. 13: 667.

Remarks: According to the original description, this species bears the characteristics that the anterior eye row is longer than second eye row, and that the diameter of anterior median eye is larger than that of anterior lateral eye. The spider which should be identified with this species has not yet been collected by myself, but it may be found in future.

***Pirata piratellus* (STRAND)**

[Japanese name: Oto-komorigumo]

Tarentula (Pirata) piratella STRAND, 1907, Zool. Anz. 31: 565; STRAND, 1909, Abh. nat. Ges. Görlitz 26: 64.

Pirata piratella: SAITO, 1941, Faun. Nipponica 9(2-2): 124.

Pirata piratellus: YAGINUMA, 1970, Bull. Nat. Sci. Mus. 13: 667.

Remarks: This species is unknown to me, but I retain the name for the present in anticipation of the rediscovery of the species. It appears to be nearest to, if not synonymous with, *P. piraticus* (CLERCK). According to the original description, *piratellus* has some characteristics that the total length is larger than that of *piraticus*, and that each of eyes of anterior row has the same diameter.

***Pirata knorrii* (SCOPOLI)**

[Japanese name: Kunoru-komorigumo]

Aranea Knorrii SCOPOLI, 1763, Ent. Carniol.: 403.*Pirata Knorri*: SIMON, 1876, Arachn. de France 3: 296; BECHER, 1882, Ann. Mus. Hist. Nat. Belg. 10: 118.*Pirata Knorrii*: CHYZER & KULCZNSKI, 1891, Aran. Hungar. 1: 75; BÖSENBERG, 1903, Zoologica 14: 407; SAITO, 1934, Journ. Agr. Hokkaido Univ. 33: 352; 1939, Saito Ho-on Kai Mus. Res. Bull. 18: 72; 1941, Faun. Nipponica 9(2-2): 126.*Pirata knorri*: DAHL, 1908, Nov. Act. Leopoldina 88: 296; F. & M. DAHL, 1927, in DAHL, Tierw. Deutschl. 5: 62; SAITO, 1959, Spider Book Col.: 58; WIEBES, 1959, Zool. Verhand. 42: 64.*Lycosa Knorri*: LESSERT, 1910, Catal. Invert. Suiss; Araign.: 501; SIMON, 1937, Arachn. de France 6: 1118, 1140.*Pirata knorrii*: YAGINUMA, 1970, Bull. Nat. Sci. Mus. 13: 667.

Remarks: Although SAITO (1934) reported that this species occurred in Japan, I have never been collected this species. I keep this name because of the possibility of the rediscovery of this species in future.

Misplaced Japanese Species

Although I could not examine the type-specimens as they were lost during the World War II, the following two species seem to be obviously misplaced, judging from the descriptions and figures.

Pirata aomorensis SAITO, 1939 and *P. longipedis* SAITO, 1939.

These two species have no V-shaped mark on their carapace, and their epigynum and male palps are very different in shape from these of all the known species of *Pirata*.

P. aomorensis seems to be a subadult of *Pardosa T-insignita* (BÖSENBERG et STRAND) and *P. longipedis* may be either *Pardosa laura* KARSCH or *P. brevivulva* TANAKA.

Key to the Species of the Genus *Pirata* of Japan*

- 1. Anterior median eyes smaller than or equal to laterals 2
- Anterior median eyes larger than laterals 4

* The three species, *piratoides*, *piratellus* and *knorrii*, are not included, because spiders which should be identified with these species have not been confirmed in Japan, since these descriptions were made by BÖSENBERG & STRAND, 1906 (*piratoides*), STRAND, 1907 (*piratellus*), and SAITO, 1941 (*knorrii*).

2. Carapace with lateral light bands separated from margins by dark bands *exiguus* n. sp.
- Carapace with lateral light bands not separated from margins by dark band 3
3. Carapace with a distinct V-shaped mark, and with no line along the margin. Anterior eye row weakly procurved *clercki* (BÖSENBERG et STRAND)
- Carapace with a faint V-shaped mark, and with a very narrow dark line along the margin. Anterior eye row strongly procurved *procurvus* (BÖSENBERG et STRAND)
4. Carapace with lateral light bands separated from margins by dark bands. Anterior eye row shorter than second eye row 5
- Carapace with lateral light bands not separated from margins by dark bands. Anterior eye row equal in length to second eye row 8
5. Carapace with a very narrow dark line along the margin 6
- Carapace with no line along the margin 7
6. Clypeus less than the half diameter of anterior median eye *japonicus* n. sp.
- Clypeus about as large as the diameter of anterior median eye *meridionalis* n. sp.
7. Legs with annulations. Anterior eye row straight or weakly procurved.. *yaginumai* n. sp.
- Legs with no annulation. Anterior eye row procurved *boreus* n. sp.
8. Clypeus slightly less than the diameter of anterior median eye. Diameter of anterior median eye about 1.5 times as large as anterior lateral eye *piraticus* (CLERCK)
- Clypeus less than half the diameter of anterior median eye. Diameter of anterior median eye about 2 times as large as anterior lateral eye *subpiraticus* (BÖSENBERG et STRAND)

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Explanation of Plates 1–3

Plate 1

- Figs. 1–3. *Pirata piraticus* (CLERCK). 1. Epigynum (ventral view). 2. Epigynum (dorsal view). 3. Tarsal organs of male palp.
Figs. 4–6. *Pirata subpiraticus* (BÖSENBERG et STRAND). 4. Epigynum (ventral view). 5. Epigynum (dorsal view). 6. Tarsal organs of male palp.
Figs. 7–10. *Pirata yaginumai* n. sp. 7. Epigynum (ventral view). 8. Epigynum (dorsal view). 9. Tarsal organs of male palp. 10. Median apophysis of male tarsal organs (retrolateral view).

Plate 2

- Figs. 11–14. *Pirata japonicus* n. sp. 11. Epigynum (ventral view). 12. Epigynum (dorsal view). 13. Tarsal organs of male palp. 14. Median apophysis of male tarsal organs (retrolateral view).
Figs. 15–17. *Pirata meridionalis* n. sp. 15. Epigynum (ventral view). 16. Epigynum (dorsal view). 17. Tarsal organs of male palp.
Figs. 18–20. *Pirata boreus* n. sp. 18. Epigynum (ventral view). 19. Epigynum (dorsal view). 20. Tarsal organs of male palp.

Plate 3

- Figs. 21–24. *Pirata clercki* (BÖSENBERG et STRAND). 21. Epigynum (ventral view). 22. Epigynum (dorsal view). 23. Tarsal organs of male palp. 24. Median apophysis of male tarsal organs (retrolateral view).
Figs. 25–27. *Pirata exiguus* n. sp. 25. Epigynum (ventral view). 26. Epigynum (dorsal view). 27. Tarsal organs of male palp.
Figs. 28–31. *Pirata procurvus* (BÖSENBERG et STRAND). 28. Epigynum (ventral view). 29. Epigynum (dorsal view). 30. Tarsal organs of male palp. 31. Median apophysis of male tarsal organs (retrolateral view).





